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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/757,197	01/14/2004	Jimmie Earl DeWitt JR.	AUS920030556US1	3551
35525	7590	08/17/2007		
IBM CORP (YA) C/O YEE & ASSOCIATES PC P.O. BOX 802333 DALLAS, TX 75380			EXAMINER DAO, THUY CHAN	
			ART UNIT 2192	PAPER NUMBER
			MAIL DATE 08/17/2007	DELIVERY MODE PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

20

Office Action Summary	Application No.		Applicant(s)	
	10/757,197		DEWITT ET AL.	
	Examiner		Art Unit	
	Thuy Dao		2192	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 03 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 28 June 2007.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1, 11 and 20 is/are pending in the application.
 4a) Of the above claim(s) 2-10, 12-19 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1, 11 and 20 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 14 January 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
 Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
 a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date <u>03/30/07, 06/28/07</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114.

Applicant's submission filed on June 28, 2007 has been entered.

2. Claims 1, 11, and 20 have been examined.

Information Disclosure Statement

3. The Office acknowledges receipt of the Information Disclosure Statement filed on March 30 and June 28, 2007. It has been placed in the application file and the information referred to therein has been considered by the examiner.

Response to Amendments

4. Per Applicants' request, claims 1, 11, and 20 have been amended and claims 2-10 and 12-19 have been canceled.

5. As recorded in the Interview Summary mailed June 5, 2007, the Applicants initiated the interview, proposed and discussed the potential amendments in claims. It was agreed that the examiner would fully reconsider the instant application. No allowable subject matter has been indicated in the interview.

Response to Arguments

6. The Applicants are thanked for a thorough reply. Applicants' arguments have been considered but are moot in view of the new ground(s) of rejection.

Claim Rejections – 35 USC § 103

7. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

Art Unit: 2192

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

8. Claims 1, 11, and 20 are rejected under 35 U.S.C. 103(a) as being unpatentable over "IBM Hardware Performance Monitor (hpm)", August 2002 (art made of record, hereinafter "IBM-HPM") in view of US Patent Publication No. 2003/0005422 A1 to Kosche et al. (art made of record, hereinafter "Kosche") and further in view of US Patent No. 6,681,388 to Sato et al. (art made of record, hereinafter "Sato").

Claim 1:

IBM-HPM discloses a computer program product, a system, and a *method, in a data processing system, for optimizing runtime execution of a computer program* (e.g., pages 3, 8), *comprising:*

obtaining performance profile data accumulated during a trace of a computer program execution to include annotations based on the occurrence of one or more events during execution of the computer program (e.g., pages 3, 6),

wherein the one or more events occur based on hardware counter values and performance indicators associated with one or more portions of the computer program (e.g., pages 4-5);

obtaining code for the computer program (e.g., pages 27-28);

determining a manner for compiling the code to provide one or more optimizations to the runtime execution of the computer program based on the performance profile data and the annotations (e.g., pages 27-29),

wherein the one or more optimizations include at least one of an optimization to branch prediction (e.g., pages 10, 12), *and*

an optimization to cache misses and cache hit rate (e.g., pages 6, 10, 12);

presenting the one or more optimizations to a programmer using one or more graphical user interfaces (e.g., page 27-28);

receiving one or more selected optimizations of the one or more optimizations selected by the programmer (e.g., pages 27-28); and

compiling the code using the one or more selected optimizations to generate an optimized computer program (e.g., page 27, 16, 21, 26, and 32).

IBM-HPM discloses profiling and optimizing branch prediction and branch misprediction rate (pages 10, 12), but does not explicitly disclose *one or more optimizations include at least one of an optimization to instruction paths of the computer program at branch points such that a more contiguous execution of instructions within the computer program is achieved.*

However, in an analogous art, Kosche further discloses *one or more optimizations include at least one of an optimization to instruction paths of the computer program at branch points such that a more contiguous execution of instructions within the computer program is achieved* (e.g., [0029]; [0034-0036]; FIG. 4-6 and related text).

It would have been obvious to a person having ordinary skill in the art at the time the invention was made to combine Kosche's teaching into IBM-HPM's teaching. One would have been motivated to do so to make operations faster, executing more operations in parallel, increase performance, and avoid pipeline stalls as suggested by Kosche (e.g., [0007-0008] and [0011-0020]).

IBM-HPM discloses profiling and optimizing cache misses and cache hit rate (pages 6, 10, 12) but neither IBM-HPM nor Kosche explicitly discloses *one or more optimization to storage of instructions or data in a cache so that portions of a cache line that is falsely shared are stored in the cache on different cache lines.*

However, in an analogous art, Sato further discloses *one or more optimization to storage of instructions or data in a cache so that portions of a cache line that is falsely shared are stored in the cache on different cache lines* (e.g., col.29: 1-29; col.1: 29-46; FIG. 27-29 and related text).

Art Unit: 2192

It would have been obvious to a person having ordinary skill in the art at the time the invention was made to combine Sato's teaching into IBM-HPM and Kosche's teaching. One would have been motivated to do so to reduce inter-cache conflict and shorten the execution time of the program as suggested by Sato (e.g., col.2: 18-22).

Claim 11:

Claim 11 is a computer program product version, which recites the same limitations as those of claim 1, wherein all claimed limitations have been addressed and/or set forth above. Therefore, as the references teach all of the limitations of the above claim, they also teach all of the limitations of claim 11.

Claim 20:

Claim 20 is a system version, which recites the same limitations as those of claims 1 and 11, wherein all claimed limitations have been addressed and/or set forth above. Therefore, as the references teach all of the limitations of the above claims, they also teach all of the limitations of claim 20.

Conclusion

9. Any inquiry concerning this communication should be directed to examiner Thuy Dao (Twee), whose telephone is (571) 272 8570. The examiner can normally be reached on Tuesday, Thursday, and Friday from 6:00AM to 6:00PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Tuan Q. Dam, can be reached at (571) 272 3695.

The fax phone number for the organization where this application or proceeding is assigned is (571) 273 8300.

Any inquiry of a general nature of relating to the status of this application or proceeding should be directed to the TC 2100 Group receptionist whose telephone number is (571) 272 2100.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for

Art Unit: 2192

published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

T. Dao

A handwritten signature in black ink, appearing to read 'Tuan Dam', with a stylized, flowing script.

TUAN DAM
SUPERVISORY PATENT EXAMINER